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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,434	08/01/2003	Dalson Ye Seng Kim	02-1467	4542

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EXAMINER

LEE, HSIEN MING

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 10/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/633,434	Applicant(s) KIM ET AL.	
	Examiner Hsien-Ming Lee	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 and 64-75 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 20-36 and 64-75 is/are allowed.
- 6) ☒ Claim(s) 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

HSIEN-MING LEE
PRIMARY EXAMINER

W/pb/2004

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>102604 8/13/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. The objection to drawing and rejection to claims 1-13 and 20-75 are withdrawn.
2. Claims 1-36 and 64-75 are pending in the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 14-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Farnworth et al. (US 6,451,624).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

In re claims 14 and 17, Farnworth et al., in Figs. 2A-2E, 3 and 4 and related text, teach the claimed semiconductor component, comprising:

- a lead frame 58 comprising a plurality of lead fingers 60, a plurality of interconnect bonding sites 66 on the lead fingers 60, a plurality of terminal bonding sites 40/52 on

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the lead fingers 60 (Fig.2e) in an area array as shown in Fig.3 and at least one bus bar 64 in the area array electrically connecting selected lead fingers 60 (Fig 3);

- a semiconductor die 14 comprising a circuit side (i.e. a top surface), a plurality of die contacts 30 on the circuit side, and a back side attached to the lead frame 58;
- a plurality of interconnects 32 bonded to the die contacts 30 and to the interconnect bonding sites 66 (Fig.2D);
- a plurality of terminal contacts 54 on the terminal bonding sites 40/52 (Fig.2E); and
- an encapsulant 18 encapsulating the die 14 and the lead frame 58.

In re claims 15 and 16, Farnworth et al. teach that the interconnect bonding sites 66 are located proximate to an outer periphery of the lead frame 58 (Fig. 2E) and the bus bar 64 is located proximate to an inner portion of the lead frame 58 (Fig.3); and the interconnect bonding sites 66 are located relative to the bus bars 64 such that the interconnects 32 do not cross the bus bars 64 .

In re claim 18, Farnworth et al. teach that the terminal contacts 54 comprises balls and the terminal bonding sites 40/52 are arranged in a grid array (Fig.1C).

In re claim 19, Farnworth et al. teach that the interconnect bonding sites 66 comprise first metal layers (i.e. silver or gold, col. 5, lines 44-46) on a first side of the lead fingers 60 and the terminal bonding sites 40/52 comprise second metal layers (on an opposing second side of the lead fingers 60.

Allowable Subject Matter

5. Claims 1-13, 20-36 and 64-75 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record, Farnworth et al. (US 6,451,624), teach a related art. However, Farnworth et al. fail to teach or suggest that the bus bar connected to selected *terminal bonding sites* (claim 1); the semiconductor die substantially *covering the bus bar* (claims 5, 20, 64 and 70); bus bars proximate to the *inner* portion electrically connecting selected lead fingers (claim 20); and a plurality of interconnect bonding sites on the first side *outside of the die mounting site* (claim 27).

Response to Arguments

7. Applicant's arguments filed 8/23/04 have been fully considered but they are not persuasive for the reason as follows.

In re claim 14, applicant's arguments is on the ground that Farworth et al. although teach plural bus bars 64 as shown in Fig. 3 but these bus bars are trimmed away from the component 10 as illustrated in Fig. 1B (second paragraph, page 13).

In response to the argument, Farworth et al teach that Fig. 3 is a plan view (i.e. top view) taken along line 3-3 of Fig. 2A, which is not related to Fig. 1B, as asserted by the applicant.

Applicant has misinterpreted the teaching of Farworth et al. In fact, Farworth et al still read on claims 14-19, as stated previously.

For the reasons given above, the rejection is deemed proper.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (8:00 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-Ming Lee
Primary Examiner
Art Unit 2823

Oct. 26, 2004

HSIEN-MING LEE
PRIMARY EXAMINER

10/26/2004